

# Technical Specifications

Zeoplant is a Natural Mineral Resource (Soil Additive) Originating from Hungary.



Zeoplant is a natural resource and a mining product.



Broken rock pieces of Zeoplant's minerals ready for crushing.



Zeoplant is manufactured in Hungary.

Zeoplant has three major components, which are common for good quality natural soils. Two of them are inorganic natural rock types, and one is a natural organic fibre material.



**Rhyolitic tuff - Active volcanic glass and Clinoptilolite**  
 **$(Na,K,Ca)_2-3Al_3(Al,Si)_2Si_13O_{36}-12H_2O$ .**



**Natural phyllo silicates - Clay minerals: Illite and Montmorillonite**  
 **$(Na,Ca)(Al,Mg)_6(Si_4O_{10})_3(OH)_6-nH_2O$ .**



**Natural cellulose compounds - A natural fibre material,**  
**which is used also as a food additive.**

The phyllo silicate and rhyolitic tuff components of Zeoplant increase the water retention capability of the soil significantly. The organic additive makes the soil more absorptive to water by building an active matrix between the soil particles and the natural mineral components. The presence of the cellulose is only important in the first 1-2 years, until the slow decomposition of the mineral components have built up enough fine particles which can fill the gaps between the larger soil and mineral components.

The rhyolitic tuff has a "positive irritating effect" on the membranes of root cells and seeds which promotes the growth of many new fine roots, increasing the general health and vigour of the plant.

The inorganic components of Zeoplant, originating from volcanic genesis, are held in calcium-potassium loaded cationic form. If there are insufficient humic salts in the soil, Zeoplant is able to substitute these through its high ion exchange capacity. Upon contact with water, the calcium, potassium, trace elements and cations are released from the mineral into the soil water for absorption by plant roots.

A wide grain-size range (0-8 mm) is used in the composition of Zeoplant as the finer grains have a larger surface area and shorter depth for liquid diffusion, so they can act immediately in the soil; while the bigger grains fragment and decompose slower, resulting in a prolonged nutritive effect which will last for 30-40 years. This long lasting composition means that Zeoplant remains active in the soil from day 1 without needing reapplication.

The total water holding capacity (W.H.C.) of Zeoplant is: minimum 420 %

## Physical & Chemical Characteristics of Zeoplant

<b>pH</b>	<b>6.7 - 7.1</b>
<b>Content of Potassium</b>	<b>3%</b>
<b>Soluble Potassium Content</b>	<b>0.7%</b>
<b>Content of Nitrogen</b>	<b>800 mg/kg</b>
<b>Content of Phosphorous</b>	<b>400 mg/kg</b>
<b>Ca &amp; Mg</b>	<b>160 mg/kg</b>

- 💧 100% Natural
- 💧 No content of organic or synthetic polymers, co-polymers, perlites or diatomaceous pozzolans.
- 💧 Conforms to the moisture retaining soil additive properties table.
- 💧 No swelling properties.
- 💧 A proven, successful history in the GCC for at least 5 years.
- 💧 At least 95 % inorganic (mineral) composition.
- 💧 Effectively reduces the consumption of irrigation water by 50% minimum for a period of at least 10 years.
- 💧 Minimum 30 Meq/100gr CEC (Cationic Exchange Capacity) in order to increase the storage capacity of the soil for the important nutrition elements to be available in the root zone for uptake by plants.
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- 💧 High content of nutrition/ macro elements (N,P,K,Ca,Mg) and optimal concentration of micro- and trace elements (Fe, Mn, Mo, B, Zn, Cu) .
- 💧 Irrigation water application reduced by 50% immediately after applied of Zeoplant to the soil.

## Physical Properties (ASTM F-1815-97 With Water Release, Modified)

Lab ID No.	Sample	Bulk Density (g/cc)	Particle Density (g/cc)	Ksat Infiltration (mm/hr)	Total Porosity <sup>2</sup> %	Aeration Porosity <sup>2</sup> %	Capillary Porosity <sup>2</sup> %
19670-1	Sweet Soil	1.59	2.68	319	40.6	19.4	21.2
19670-1a	95-5 Sweet Soil - Zeoplant	1.64	2.68	45	38.7	8.6	30.1
19670-2	Red Soil	1.59	2.68	328	40.6	21.3	19.3
19670-2a	95-5 Sweet Soil - Zeoplant	1.60	2.66	75	39.7	15.4	24.3

Laboratory results measured by Hummel & Co., accredited USGA Lab from USA.